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ABSTRACT:

PROBLEM TO BE SOLVED: To utilize effectively an image memory by controlling a read means for one side or both sides depending on an instruction of whether an original is a one-side original or a both-side original so as to eliminate the need for text management of unrequired excess information (rear side of one side original: usually white paper).

SOLUTION: A system control section 1 conducts control processing of each section and facsimile transmission control processing. A system memory 2 stores data or th like required to execute programs by the system control section 1, acts as a work area and stores parameters required for system control and registration data obtained by the user operation or the like. A scanner 3 capable of reading images of a double side original simultaneously

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the communication terminal equipped with the image reader and this which perform reading/are recording of a double-sided manuscript.

[0002]

[Description of the Prior Art] For example, with the equipment indicated by JP,6-86052,A, the double-sided color copy was scanned and the image recorded in the record paper by the time it was judged with the manuscript being a specific manuscript is eliminated before recording paper blowdown. Moreover, when suspending the image formation to the whole surface of a record medium, the white image is superimposed on the whole surface of a record medium at least. It is necessary to manage excessive information (white image) to an image memory by this method. In addition, when reading / accumulating a double-sided manuscript, odd pages is read continuously, and after an operator turns all manuscripts over, the method which reads an even-numbered page continuously is proposed. In this case, it is constituted so that a double-sided manuscript may be read by one read station.

[0003]

[Problem(s) to be Solved by the Invention] It is necessary to manage excessive information (white image) to an image memory, and consideration is not made about the point of using image storage equipment (image memory) effectively, with the above-mentioned conventional technique. This invention does not have to improve such a trouble, does not have to carry out the documentation management of the excessive information (flesh side : usually blank paper of an one side manuscript) in the image reader of a configuration of that a double-sided manuscript can be read to front flesh-side coincidence, and aims at enabling it to use an image memory effectively. Moreover, an invalid information page cannot be sent out, but the reading time amount of one side of the sending vote at the time of double-sided manuscript reading mode or the last manuscript is shortened, and it aims at enabling it to perform reading/are recording efficiently. Moreover, it aims at offering the communication terminal which can respond also to the quick memory transmission which transmits while accumulating drawing information by having the image reader of this invention. Moreover, it aims at controlling the light source for reading efficiently and prolonging an equipment life.

[0004]

[Means for Solving the Problem] In order to attain the above-mentioned object , in order that invention according to claim 1 may read the front flesh side of a double-sided manuscript simultaneously , it be the image reader which have arrange two reading means on manuscript reading pass , and an one side manuscript or a double-sided manuscript direct , two reading means control for the reading means of one side by these directions at the time of a double-sided manuscript at the time of an one side manuscript , and the description be for the above-mentioned directions to be switch per one manuscript . Moreover, when invention according to claim 2 recognizes whether a sending vote is added in the communication terminal equipped with the image reader according to claim 1, and is with a sending vote and is a double-sided manuscript, the

description is to read only the first manuscript (sending vote) as an one side manuscript, and read subsequent manuscripts as a double-sided manuscript. Moreover, in the communication terminal equipped with the image reader according to claim 1, invention according to claim 3 is a double-sided manuscript, and recognizes whether there is any number assignment of pages, and whether the number of assignment pages is odd, and when it recognizes, it recognizes manuscript number of sheets from the number of assignment pages and the number of assignment pages is odd, the description is to read only the last manuscript as an one side manuscript. Moreover, in a communication terminal according to claim 2, image storage equipment (image memory) recognizes management of a sending vote, and invention according to claim 4 has the description in managing a sending vote apart from a manuscript at the time of reading. Moreover, in a communication terminal according to claim 2, invention according to claim 5 has the description in subsequent manuscripts judging one side or both sides, turning on the tubing light sources for rear-face reading (xenon lamp etc.) in the case of both sides, and skipping reading of a rear face, when reading a sending vote. Moreover, in a communication terminal according to claim 3, when the number of pages of a double-sided manuscript is odd, invention according to claim 6 judges reading initiation of the last manuscript, or (the last manuscript -1) reading termination of eye **, and the description is in making the tubing light sources for background reading (xenon lamp etc.) switch off by the above-mentioned decision.

[0005]

[Embodiment of the Invention] In this invention, distinction of one side/both sides is directed before manuscript reading by the key stroke of an actuation display etc., and it constitutes so that it may switch per one manuscript. Moreover, according to these directions, excessive information is constituted so that a documentation management may not be carried out. Moreover, while enabling directions of the existence of a sending vote and treating as an one side manuscript only about a sending vote, it manages apart from other manuscripts. Moreover, the object for both sides turns on the tubing light sources, such as a xenon lamp, at the time of sending vote-reading picking, and it controls to switch off the object for rear faces about the time of the last one side manuscript reading.

[0006] Hereafter, a drawing explains one example of this invention.

(The 1st example) Drawing 1 is the block diagram showing the configuration of the facsimile apparatus in the 1st example of this invention, drawing 2 R> 2 shows the documentation-management approach of this example, and drawing 3 shows the conveyance pass at the time of double-sided reading of this example. In addition, this example is one example of invention according to claim 1. In drawing 1, 1 is the system control section and performs control processing and facsimile transmission control procedures of each part. 2 is a system memory, when the system control section 1 performs a program, memorizes required data etc. or stores the utilization as a work area, and the registration data further obtained by the required parameter, user actuation, etc. on system control. 3 is the scanner which can read a double-sided manuscript simultaneously, and reads a manuscript in predetermined resolution. 4 is a plotter and records an image or reports in predetermined resolution. 7 is a network control section, is for connecting with a dial-up line network, and has an auto-sending function. 8 is G3 FAX modem and realizes the modem function of group 3 facsimile. 9 is an image memory for memorizing the transmitting image and the receiving image if needed, for

example, is remaining as it is (raw) or a thing for compressing and memorizing, without compressing the read information. 10 is the coding decryption section, is compressed into the sign which was able to define the raw image, or elongates the encoded image in the original raw image.

[0007] Moreover, 11 is an actuation display which performs communication link actuation, register operation, etc., and has the function in which the manuscript which various keys and a drop are consisted of, for example, is read directs one side or both sides. At this example, it is especially a hardkey for double-sided are recording (it is hereafter called a double-sided manuscript key.). It does not illustrate. If LED (not shown) is interlocked and the depression of the double-sided manuscript key is carried out, LED corresponding to it will light up, and again, if the depression of the double-sided manuscript key is carried out, it constitutes so that the LED may put out the light. Namely, the information which shows a double-sided manuscript or an one side draft is set up, and by operating a double-sided manuscript key before manuscript reading actuation shows that it is [double-sided] under are recording during burning of said LED. It constitutes so that it may memorize, while an are recording result is furthermore updated on RAM which constitutes said system memory 2. Or if the depression of said double-sided manuscript key is carried out, the purport (for example, the alphabetic character "both sides") which is a double-sided manuscript will be displayed on LCD (for example, predetermined area on the LCD screen), and again, if the depression of the double-sided manuscript key is carried out, you may constitute so that it may switch to the display (for example, the alphabetic character "one side") of the purport which is an one side manuscript. Moreover, when are recording processing is completed, the hysteresis of this double-sided manuscript key is discarded, and you may make it surely return to which condition. In addition, these setting out is held as an internal switch to the system memory 2, and may be made to be switched to arbitration by switch setting-out actuation etc.

[0008] In this example, in case the manuscript of ten sheets is read, for example, the 3rd sheet and the 9th sheet are double-sided manuscripts, and others direct one side about the manuscript of the 1st sheet, without carrying out the depression of the double-sided manuscript key, when it is an one side manuscript. In that case, if the displays are both sides, a double-sided manuscript key will be cleared. After this, about the 3rd sheet, a double-sided manuscript key is pressed and both sides are directed from the 2nd sheet reading initiation before the 3rd sheet reading initiation. Moreover, about the 4th sheet, a double-sided manuscript key is cleared and one side is directed from the 3rd sheet reading initiation before the 4th sheet reading initiation. After this, about the 9th sheet, a double-sided manuscript key is pressed, both sides are directed, a double-sided manuscript key is cleared about the 10th sheet, and one side is directed. By such actuation, the information matched with "1 sheet:one side", "2 sheet:one side", "3 sheet:both sides", "4 sheet:one side", "5 sheet:one side", "6 sheet:one side", "7 sheet:one side", "8 sheet:one side", "9 sheet:both sides", and "10 sheet:one side" is memorized.

[0009] Next, drawing 2 explains briefly the treatment of the document in an image memory 9. At this example, the documentation-management table 20, the page managed table 30, and a destination control table 40 are required-number ***** in a system memory 2. Into the documentation-management table 20, the various parameters 21 treating a document, for example, a publication number, the document type 22, and

date-and-time-of-creation 23 grade are set. In this, in case the page [1st] pointer 26 stores a document all over an image memory 9, it is a pointer in which the page [1st] page managed table 30 of a document is shown, and when a document is two or more pages, the following page pointer 35 is used for it one by one like drawing 2 . On this page managed table 30, the image pointer 34 grade which indicates the storing locations of a actual document to others to be parameters, such as the size 31 of an are recording document, linear density 32, and the sign mode 33, is set. Similarly, the destination can also quote a destination control table 40 with the pointer 27 of 1 destination eye, and sets the simple code 41, the activation result 42, and destination [degree] pointer 43 grade into this. When neither the case where there is no following page, nor degree the destination is, "NULL" which shows last to the following page pointer 35 and the destination [degree] pointer 43 is set.

[0010] Next, drawing 3 explains the conveyance pass at the time of reading in this example. In this example, have two motors for actuation (MOTOR (1), MOTOR (2)), and it sets by turning a manuscript side up, and reads in the 1st page (p. it illustrates with 1). It dissociates by pickup roller R (p), and an one-sheet manuscript is made possible [conveyance] at PURIFIDORORA (Rfeed). As PURIFIDO processing, it has a manuscript head to the location of detection location +alpha by sensor [of the roller R (1) point] S (2), and goes. In addition, sensor S (1) investigates the existence of a manuscript, and since the conveyance way to sensor S (2) is long, it mainly uses sensor S (0) for the check of Manuscript JAM. Reading is performed while [if started,] surface reading sensor S (4) is those with a manuscript, feed or. In the case of a double-sided manuscript, rear-face reading by rear-face reading sensor S (5) is performed in parallel [for a while]. Moreover, at the time of an one side manuscript, the depression of both settled stamps 50 shall be carried out near the manuscript back end if needed at the time of the double-sided manuscript of one side (below) at the time of the stamp function ON by the settled stamp 50. In addition, the latest reading sensor is CCD united with the xenon lamp, and is called an adhesion sensor. Moreover, in drawing 3 , R (0) and Rexit show a conveyance roller and S (3) shows a manual bypass set sensor.

[0011] Next, reading / are recording processing of the one side manuscript in this example are explained. the information read with the scanner 3 in this example -- the coding decryption section 10 -- raw -- or it compresses and accumulates in an image memory 9. Moreover, the manuscript to read directs one side or both sides by the actuation display 11 as mentioned above. Under the present circumstances, when it chooses per file fundamentally and an one side manuscript and a double-sided manuscript are intermingled as mentioned above, it constitutes so that ["both sides" and "one side"] it may be switched also in a file using this double-sided manuscript key. In addition, by this example, A method (it is (b) at the time of (a) and a double-sided manuscript at the time of an one side manuscript) shown in drawing 4 or B method (it is (d) at the time of (c) and a double-sided manuscript at the time of an one side manuscript) is used as are recording means of displaying by LED at the time of one side / double-sided reading. In the one side are recording display screen 701 by this A method, and the double-sided are recording display screen 702, distinction of a memory residue, and one side/both sides, pagination, and a file number are displayed. Moreover, in the one side are recording display screen 703 by B method, and the double-sided are recording display screen 704, a memory residue, pagination, and a file number were displayed, and distinction of one

side/both sides was not displayed, but is distinguished by pagination (in the case of both sides, in this example, pagination is displayed as "1&2"). In addition, the parameter group for performing such a display is memorized as shown on a system memory (RAM) 2 at drawing 5 . In drawing 5 , (A) is a parameter group in said A method, and the image 720 of the argument of the display process at the time of one side / double-sided reading consists of a file number 711, the memory residue 712, pagination 714, and one side/both sides 715 (distinction). Moreover, (B) is a parameter group in said B method, the image 730 of the argument of the display process at the time of one side / double-sided reading consists of pagination 716, 717 on a file number 711, the memory residue 712, and the rear face of a table, and, in the case of one side, pagination 717 becomes with "NULL." Moreover, (C) is the image 710 of the argument of the display process at the time of one side reading in the conventional method, consists of a file number 711, a memory residue 712, and pagination 713, and does not have a parameter for displaying distinction of one side/both sides.

[0012] In this example, as shown in (a) of drawing 6 , are recording is started, it is not rich, initialization processing of a related part is carried out (step 401), and a file is changed into an opening condition (step 402). A publication number 21, the document type 22, and date-and-time-of-creation 23 grade shall be set at this time in the semantics that this assigns the documentation-management table 20 on a system memory 2 newly to are recording. Subsequently, a page counter (not shown) is set up. The page counter value of this example shall be assigned into a system memory 2, and shall be initialized by "0" by the aforementioned initialization processing. The parameter group for displaying under such are recording processing is as having been shown in drawing 5 . Next, if there is a manuscript, PURIFIDO will be carried out as drawing 3 R> 3 explained (step 403). Next, a manuscript refers to one side or both sides from RAM (system memory) which memorized the condition of the above-mentioned double-sided manuscript key, and branches in the target reading mode (step 404). Consequently, in the case of one side, "+1" of the page counter is carried out (step 405), and, in the case of both sides, "+2" of the page counter is carried out (step 410). Next, are recording processing is performed, reading a manuscript (step 406, 411).

[0013] The outline of this step 406 is as being shown in drawing 6 (c). That is, in the case of an one side manuscript, 1 page (table) open shop operation is performed as [this example] usual (step 431). Under the present circumstances, the page [1st] pointer 26 of allocation and the above-mentioned documentation-management table 20 points out one of this for the page managed table 30 newly. Moreover, into the page managed table 30, size (are recording width of face) 31, linear density 32, and the sign mode 33 are set. A manuscript width-of-face sensor (not shown) detects this size 31. In addition, a manuscript width-of-face sensor is near sensor S (1) shown in drawing 3 , and in order to usually recognize A4 width-of-face - B4 width-of-face - A3 width of face, it is installed two pieces. that is, both two manuscript width-of-face sensors -- one side of A3 and center approach judges [both A4] it as B4 by ON in OFF at ON. Moreover, linear density 32 makes what was chosen and directed by user actuation reflect. Moreover, although the sign mode 33 has raw/MH/MR/MMR etc., it is usually a service change, and it makes the content of setting out reflect. Furthermore, the starting address of the image memory used actually is stored in the image pointer 34. If the above processing finishes, an image will be read per line, this is encoded, and it accumulates in an image memory 9

(step 432). In addition, about this are recording processing, it is a known technique, and since it is not the important section of this invention, it omits. After reading / are recording processing of the above-mentioned page unit (step 432) are completed, page closed shop operation (step 433) is performed. Here, the following page pointer of the above-mentioned page managed table 30 is provisionally set to NULL in the sense of processing termination.

[0014] On the other hand, the outline of step 411 is as being shown in drawing 6 (b). In addition, in the case of a double-sided manuscript, naturally, a required parameter also changes also by initialization processing first, but here explains reading / are recording processing. That is, in being a double-sided manuscript, it treats about a table like the above-mentioned page open shop operation first (step 421). In order to perform hidden page open shop operation furthermore, one page managed table 30 is assigned (step 422). In this case, the following page pointer of a table needs to point out a hidden page managed table. for example, reading mode -- here -- a front flesh side -- it shall treat as the same and the size of both page managed tables, linear density, and sign mode set the same value. In spite of omitting actual reading in the above processing, the information to the 2nd page is set on file management. Next, reading / are recording processing (a table, flesh side) is performed (step 423,424). In this case, the information read optically actually is raw and the technique which carries out sequential storing of this at a line buffer (not shown) etc., encodes in the coding decryption section 10, and is accumulated in an image memory 9 is known. It has two line buffers, and the two coding decryption sections 10 consist of this examples so that it may have or may be switched per line. the above configuration -- a front flesh side -- the pass of an image processing is formed independently and the information for 2 pages is stored in an image memory 9 almost simultaneous as a result. It of "a page 1" and a flesh side is stored for what is obtained from the are recording pass of a table here as "a page 2." In this way, after reading / are recording processing of both front flesh side (step 423,424) are completed (processing of one side usually finishes early), page closed shop operation of a front flesh side is performed (step 425,426). This page closed shop operation also sets the 2nd following page pointer (the following page pointer of the back page in step 426) to NULL. By such control, the front flesh side of a double-sided manuscript can be read simultaneously, and can be accumulated almost simultaneous. Moreover, by reading / are recording processing of one side / double-sided manuscript explained above, per manuscript, from the content reflecting directions of the above-mentioned double-sided manuscript key, even if one side / double-sided manuscript is intermingled in the manuscript accumulated as one file, it accumulates appropriately and the file management of one side or both sides can be carried out by judging before manuscript reading.

[0015] After these reading / are recording processings, if there is no following manuscript (No of step 407), file closed shop operation will be performed (step 408), and are recording processing will be ended. in addition -- setting a page counter to the documentation-management table 20 in file closed shop operation **** -- are recording - ending -- transmission -- an waiting purport shall be set up (not shown) On the other hand, if there is the following manuscript (Yes of step 407), it will return to step 404 and a page unit will be processed again. In this case, henceforth [the 2nd page], it sets up so that the following page pointer 35 of the front page managed table 20 may point out the following page managed table.

[0016] (The 2nd example) Drawing 7 is drawing showing reading / are recording procedure, and the content of a display of one side / the double-sided manuscript in the 2nd example of this invention, and corresponds with the 1st example (drawing 6). In addition, this example is one example of invention according to claim 2. Moreover, the fundamental configuration (drawing 1 - drawing 3) and fundamental function which were shown in the 1st example also make this example the same. In the 1st example of the above, although the operator needed to perform change directions of one side/both sides, by this example, it is the communication terminal which has the image reader shown in the 1st example, and when there are sending vote directions in the communication terminal, even if an operator does not intervene during are recording processing, the equipment with which the same effectiveness as the 1st example is acquired is shown. It constitutes from this example so that actuation (directions of one side/both sides, directions of sending vote addition, etc.) by the actuation display at the time of memory are recording (11 of drawing 1) may be performed in the menu selection by a ten key etc. on the LED display screen. That is, if the LED itself is used as a touch panel and the depression of the part for the display of one side or both sides is carried out, it constitutes so that the inverse video of the part for the display may be carried out. Moreover, in this example, it does not assume switching one side/both sides frequently like the 1st example, but the case where a sending vote and the last manuscript are odd pages is treated as an exception. For example, as shown in the LED display screen 502 of drawing 7 (b), when even the phase hand has inputted by the actuation display (11 of drawing 1) at the time of memory are recording, the bottom scrolling key (not shown) which directs an option shall be gone to push and the selection screen (LED display screen 503 of drawing 7 (b)) of an option, and directions of a double-sided manuscript and directions of a sending vote are performed here. If setting out is completed, a bottom scrolling key will be pressed, and it will consider as setting-out termination, and will return to Screen 502. That is, if a menu is chosen with a ten key etc. and a menu is chosen in case each selection is performed, it constitutes so that it may choose if needed by a scrolling key on either side etc.

[0017] next, it attaches [it is alike and] and explains to sending vote attached processing of this example using drawing 7 (a). In addition, also in this example, both sides or one side shall be directed per file, and since it is easy, explanation of the part which overlaps the 1st example is omitted. In this example, in step 510, if it is an one side manuscript, it will not be based on the existence of a sending vote, but all will be read as an one side manuscript. Conversely, in not being an one side manuscript, a page counter estimates first whether it is the first manuscript (evaluating from it being "0" as a result of the initialization processing 402, if it is the first manuscript), and in the case of "a page 0", the further above-mentioned functional selection information is read (when it is the first manuscript), and it judges the existence of a sending vote. In this way, when both conditions are fulfilled (Yes of step 510), it reads as an one side manuscript irrespective of under double-sided manuscript reading (step 405,406). On the other hand, it is a double-sided manuscript, and when there is no sending vote (No of step 510), it means that it was judged that it was a double-sided manuscript, and double-sided reading/are recording are carried out like the 1st example (step 410,411). The mixture manuscript of both sides/one side (sending table) can be read / accumulated one by one by adding the above decision.

[0018] In addition, since an are recording documentation-management top is also carried out by one page opening and page closing at the time of the sending vote of one side, only one page managed table is prepared, and since it carries out by two page opening and page closing at the time of a double-sided manuscript, two page managed tables are prepared at once. Moreover, since the above-mentioned decision is reflected, it is made into "+1" at the time of a sending vote, and is controlled by page count processing (step 405,410) to be referred to as "+2" at the time of a double-sided manuscript. Since it becomes unnecessary to read the invalid page used as the flesh side of a sending vote according to this example, the quick memory transmission (method which advances partner connection processing to are recording processing and coincidence, and sends out drawing information after P1 reading) which is increasing recently is attained.

[0019] (The 3rd example) Drawing 8 is drawing showing reading / are recording procedure, and the content of a display of one side / the double-sided manuscript in the 3rd example of this invention, and corresponds with the 1st example (drawing 6). In addition, this example is one example of invention according to claim 2. Moreover, the fundamental configuration (drawing 1 - drawing 3) and fundamental function which were shown in the 1st example also make this example the same. In the 1st example of the above, although the operator needed to perform change directions of one side/both sides, by this example, it is the communication terminal which has the image reader shown in the 1st example, and when performing double-sided manuscript are recording in a communication terminal and the last manuscript is an one side manuscript (odd pages), even if an operator does not intervene during are recording processing, the equipment with which the same effectiveness as the 1st example is acquired is shown.

[0020] It constitutes from this example so that actuation (directions in case the last page of a double-sided manuscript is one side etc.) by the actuation display at the time of memory are recording (11 of drawing 1) may be performed in the menu selection by a ten key etc. on the LED display screen. For example, in the LED display screen 602 of drawing 8 (b), when even the phase hand has inputted at the time of memory are recording, a bottom scrolling key (not shown) is pressed and it changes on the selection screen (LED display screen 603) of an option. In this screen 603, "0" of a ten key (not shown) and "3" are pushed, and it changes to the input screen 604 of manuscript number of sheets further. On this screen 604, a ten key "9" is pushed and it moves to Screen 605, and in this screen 605, Yes is chosen and it returns to Screen 603. It constitutes so that the completion of selection may furthermore be pushed on Screen 603 and it may return to Screen 602.

[0021] Next, the directions procedure of the last one side page of this example is explained using drawing 8 (a). In addition, also in this example, both sides or one side is directed per file, it shall judge that it is a double-sided manuscript by setting out of a system memory (RAM), and since it is easy, explanation of the part which overlaps the above-mentioned example is omitted. This example estimates first in step 610 with a page counter (result of the page count processing 405), and manuscript number-of-sheets directions (it is the number of pages at the time of both sides) of the above [whether it is the last manuscript] at the time of a double-sided manuscript. Under the present circumstances, it judges whether it is odd number, and the number of the latters is odd and, in a <former counter = page count>, they judge it as the last manuscript. When this condition is fulfilled (Yes of step 610), it reads as an one side manuscript irrespective of

under double-sided manuscript reading. when that is not right (No of step 610), it is a double-sided manuscript -- it means that it was judged and double-sided reading/are recording (step 410,411) are carried out like the 1st example. By adding the above decision, the mixture manuscript of both sides/one side (the last page is a blank paper) can be read / accumulated one by one.

[0022] In addition, since an are recording documentation-management top is also carried out by one page opening / page closing at the time of the sending vote of one side, one page managed table is prepared, and since it carries out by two page opening / page closing at the time of a double-sided manuscript, two page managed tables are prepared at once. Moreover, it cannot be overemphasized that it is referred to as "+1" when the last manuscript is one side (the number of pages is odd number), and page count processing (step 405,410) is also set to "+2" when other by both sides since the above-mentioned decision (step 610) is already made.

[0023] Moreover, as for the page counter under processing, in any case, it becomes the same (the last page is also at even number or odd number) value, but the total counter of an are recording page serves as a different value at odd:00 and even:00. the case where use the page counter under said processing for a display etc. during activation, and the 2nd sheet of a double-sided manuscript is being read for example, -- usually -- 3 pages and 4 pages -- it is -- as 3 pages -- displaying (initial value carrying out "+2" one by one by "1") -- since processing to 4 pages is performed actually, it is necessary to treat as 4 pages in the total counter of an are recording page Hereafter, it explains more concretely. For example, when a double-sided manuscript is with five sheet and the last manuscript is one side, "+1" of "8" (number of fields x 4) is carried out by page count processing (step 405), it is set to "9", and the display of Screen 701 or Screen 703 shown in drawing 4 is performed. On the other hand, when the last manuscripts are both sides, "+2" of "8" (number of fields x 4) is carried out by page count processing (step 410), it is set to "10", and the display of Screen 702 or Screen 704 shown in drawing 4 is performed. That is, A method notifies an argument as pagination 714= "9" shown in drawing 5 , and one side / double-sided 715= "one side" at the time of one side. Moreover, A method notifies an argument as pagination 714= "9" shown in drawing 5 , and one side / double-sided 715= "one side" at the time of both sides. Moreover, B method notifies an argument as pagination 716= "9" shown in drawing 5 , and pagination 717= "NULL" at the time of one side. Moreover, B method notifies an argument as pagination 716= "9" shown in drawing 5 , and pagination 717= "10" at the time of both sides.

[0024] (The 4th example) Drawing 9 is drawing showing reading / are recording procedure of one side / double-sided manuscript in the 4th example of this invention, and corresponds with the 1st example (drawing 6). In addition, this example is one example of invention according to claim 4. Moreover, the fundamental configuration (drawing 1 - drawing 3) and fundamental function which were shown in the 1st example also make this example the same. Furthermore, by this example, the case where a double-sided manuscript and a sending vote are intermingled like the 2nd example shall occur, and, as for the existence of a sending vote, a manuscript shall be independently given from an actuation display, as for directions of being one side. In this example, as shown in step 810 and step 811, a sending vote check and an one side manuscript directions check are performed independently. For this reason, as shown in drawing 10 , it has the pointer 25 of a sending vote in the documentation-management table 20, and it constitutes so that

the parameter 60 of a sending vote may be stored in page managed table 30' which this pointer 25 points out. And when there is a sending vote, page managed table 30' for sending votes is pointed out with this pointer 25, and when there is no sending vote, "NULL" is set here. In addition, the number of sending votes is one (one side), and the following page pointer 35 in the page managed table 30 to which it was pointed out by the page [1st] pointer 26 usually serves as "NULL." Moreover, as mentioned above, since a sending vote is an one side manuscript, by the above-mentioned decision, in with a sending vote, it progresses to (Yes of step 810), and step 405,406, and is read as an one side manuscript. In addition, the display change timing of an LED screen is as being shown in T1 and T2 of drawing 9 . This display change timing is the same as that also of each example.

[0025] (The 5th example) Drawing 11 is drawing showing reading / are recording procedure of one side / double-sided manuscript in the 5th example of this invention. In addition, a fundamental configuration (drawing 1 - drawing 3), an are recording display function, etc. which were shown in the 1st example also make this example the same. How to perform effectively without futility preheating actuation of the xenon lamp which especially constitutes a scanner from this example is shown. When judged as a double-sided manuscript in step 1001, about a xenon lamp, it is necessary to give remaining-heat (preheating) time amount (for it to be about 1 second which has stable early time amount) irrespective of the existence of a sending vote. For example, after carrying out PURIFIDO (step 403 of drawing 7 R> 7 - drawing 9) of the first manuscript like the 2nd - the 4th example, if it is made to preheat, reading initiation of the first manuscript will become slow. So, it is a double-sided manuscript, and even when there is a sending vote, it controls by this example to make (actual sending vote-reading picking is one side reading) and the xenon lamp of two upper and lower sides both surely preheat to compensate for the 1st manuscript reading processing (step 1003). The quantity of light stabilized without having avoided complicated processing and performing excessive latency-time processing by this control is given from the beginning. In addition, in being an one side manuscript, it preheats only the xenon lamp for front faces.

[0026] Moreover, during double-sided manuscript reading, when the last manuscript is one side, the condition of (Yes of steps 1004 and 1005a, Yes of 1005b, Yes of 1005c), and the xenon lamp for rear faces is set to OFF (putting out lights) (step 1006). This is based on the following reason. For example, although one side reading is performed during double-sided manuscript reading when the last manuscript is one side, and an up-and-down KISENNO lamp is similarly controlled by the 3rd example at step 1003 of this example, the quantity of light of the xenon lamp to a rear face cannot have semantics [when the last manuscript is one side] during double-sided manuscript reading, but the life of the xenon lamp on a background can be prolonged by switching off the object for rear faces. In addition, processing of step 1004 corresponds to step 810,811,405,410 shown in drawing 9 , and is adding skip processing (steps 1005 and 1006) between step 405,410 and step 406,411 in this example. Moreover, steps 1001-1003 are one example of invention according to claim 5, and steps 1005 and 1006 are one example of invention according to claim 6.

[0027]

[Effect of the Invention] Since according to invention according to claim 1 one side read and double-sided read are switched with directions in the automatic manuscript feeding

equipment which can be read to the front flesh-side coincidence of a double-sided manuscript when reading two or more manuscripts one by one, it is not necessary to carry out the documentation management of the excessive information (flesh side : usually blank paper of an one side manuscript), and the image memory of image storage equipment can be used effectively. When according to invention according to claim 2 a double-sided manuscript is directed and it performs sending vote addition further, the reading time amount of a sending vote can be shortened by treating only a sending vote as an one side manuscript, and treating henceforth as a double-sided manuscript. Therefore, in addition to the above, sending out of an invalid information page can be prevented by building the image reader of this invention into a communication terminal. Moreover, the reading time amount of a sending vote can be shortened at the time of double-sided manuscript reading mode. Moreover, the documentation management at the time of double-sided manuscript reading mode becomes easy. It can respond also to the quick memory transmission which transmits while accumulating drawing information furthermore. Since this value is evaluated, manuscript number of sheets is obtained for whether it is odd number, and the last manuscript can be read as an one side manuscript if the number is odd when according to invention according to claim 3 a double-sided manuscript is directed and the number assignment of pages is made further, it is not necessary to carry out the documentation management of the excessive information, and the image memory of image storage equipment can be used effectively like the above. Moreover, if the image reader of this invention is built into a communication terminal, sending out of an invalid information page can be prevented. Moreover, the documentation management at the time of double-sided manuscript reading mode becomes easy. Furthermore, the reading time amount of an one side manuscript (the last manuscript) can be shortened at the time of double-sided manuscript reading mode. According to invention according to claim 4, since a sending vote is managed apart from a manuscript in addition to invention according to claim 2, even if a manuscript is one side and it is both sides, common sending vote-reading picking control and are recording processing can be performed. When according to invention according to claim 5 a sending vote is on a double-sided manuscript and it reads this on one side, it is stabilized and the flesh side of the first manuscript can be read. Moreover, since the xenon lamp is getting warm, reading initiation of degree manuscript of a sending vote can be performed early. According to invention according to claim 6, when the number of pages of a double-sided manuscript is odd, at the time of reading of the last manuscript, an equipment life can be developed by making the lamp for reading on a background switch off. Moreover, lifting of whenever [unnecessary equipment internal temperature] can be controlled.

[Translation done.]